

Ordering Information

ZL60006TED SC Housing
 ZL60006/TBD TO-46 with lens
 ZL60006/TDD ST Housing
-40°C to +85°C

Features

- Data rate up to 3.125 Gbps
- 1310 nm, 1550 nm PIN photodiode
- TO-46 Assembly
- Integrated TIA and limiting amplifier
- Single 3.3 V supply
- Low power consumption

Applications

- Sonet OC-48
- SDH STM-16
- 2.125 Gbps fiber channel
- 2.5 to 3.125 Gbps general application

Description

This optical receiver is a 3.3 V device which contains a PIN photodiode and a low noise transimpedance with limiting amplifier in a TO-46 package with lens cap. It is designed for OC-48 operation and single mode fiber. Reliability Assurance based on Telcordia GR-468-CORE.

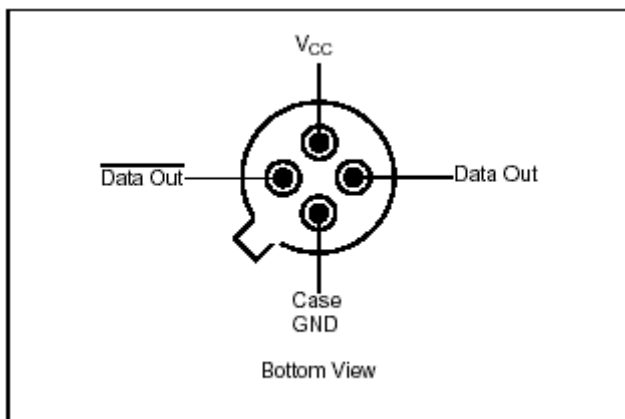


Figure 1 - Pin Diagram

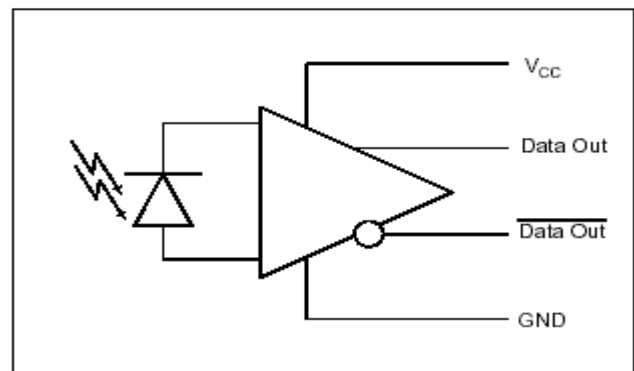


Figure 2 - Functional Schematic

Optical and Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Responsivity, differential	R	4	6		kV/W	$\lambda=1310$ nm, $R_L=100 \Omega$, Note 1
Output voltage amplitude, differential	ΔV_O	200	300		mV _{pp}	$R_L=100 \Omega$ Note 2
Bandwidth (3 dB _{el})	f_c		2.0		GHz	Pf = 10 μ W, $R_L=100 \Omega$
Optical Saturation Level	P_{sat}	1			dBm	$\lambda=1310$ nm, $ER = \infty$ Note 3
Noise-Equivalent Power	NEP		-35	-30	dBm	$\lambda=1310$ nm, Note 4
Sensitivity (BER 10^{-9})	s		-25	-23	dBm	$\lambda=1310$ nm, $ER = \infty$ Note 3
Dynamic Range			24		dB	
Output Resistance (single)	R_o		50		Ω	
Power Dissipation	P_D		85	140	mW	
Power Supply Current	I_{DD}		25	38	mA	Data & Data AC Coupled

Operating Conditions: 25°C Case Temperature/3.3 V Supply Voltage/Fiber: Single-mode 10/125 μ m fiber.
PRBS Pattern $2^{23}-1$ at 2.5 Gbps.

Note 1: Pf = 10 μ W Peak-Peak Power

Note 2: Pf = 500 μ W Peak-Peak Power

Note 3: Measured at 10^{-10} BER with a $2^{23}-1$ PRBS at 2.5 Gbps

Note 4: Measured with STM-16 filter on electrical output, i.e., 1.875 GHz

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Supply Voltage	V_{CC}	0	3.6	V
Storage Temperature	T_{stg}	-40	125	°C

Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit
Supply Voltage	$V_{CC}-V_{EE}$	3	3.3	3.6	V
Operating Temperature	T_{op}	-40		85	°C
Signalling Rate, Note 5	f_D	1		3.125	Gbps

Note 5: Data pattern are to have maximum runlength and DC-balance shifts no more than that of a PRBS-31 pattern.

Typical Responsivity

	Wavelength	Fiber core/cladding diameter numerical aperture
		10/125 μm , NA=0.11
Differential responsivity	1310 nm	6 kV/W
Differential responsivity	1550 nm	7.4 kV/W

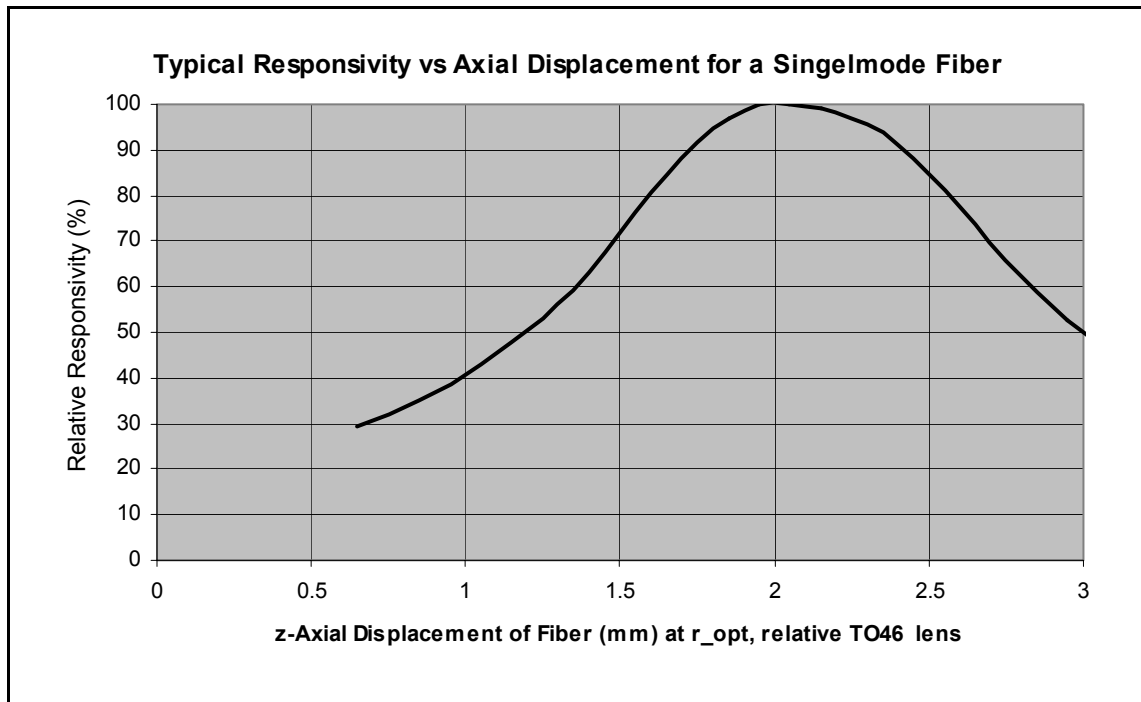


Figure 3 - Typical Responsivity vs Axial Displacement for a Singelmode Fiber

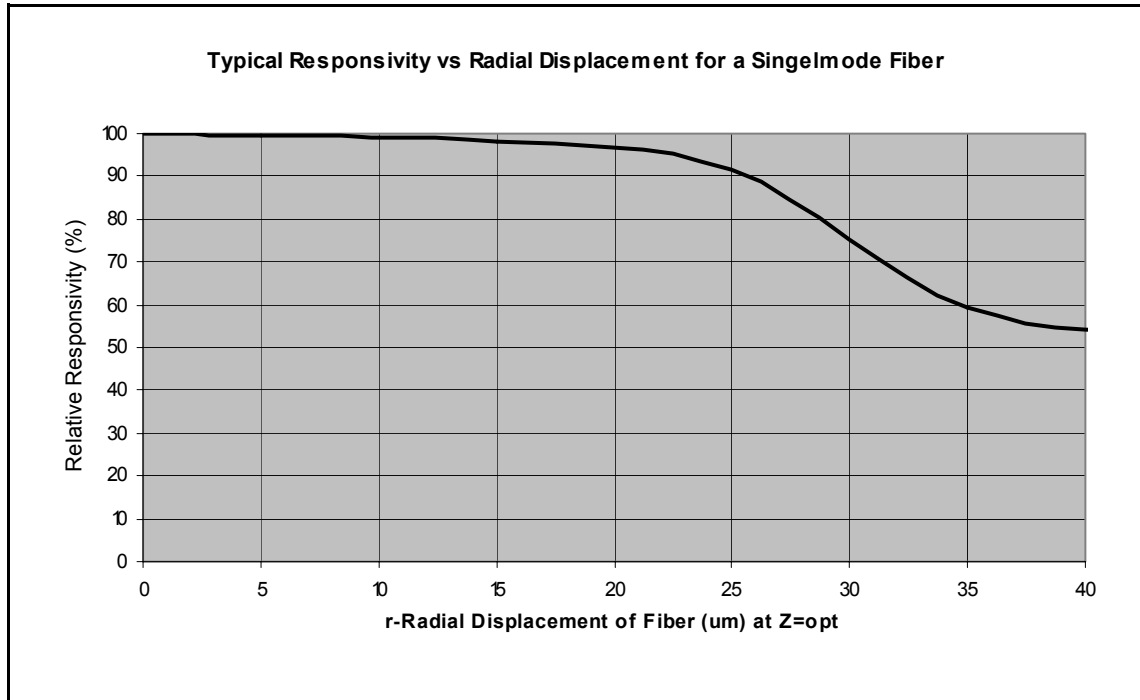


Figure 4 - Typical Responsivity vs Radial Displacement for a Singelmode Fiber

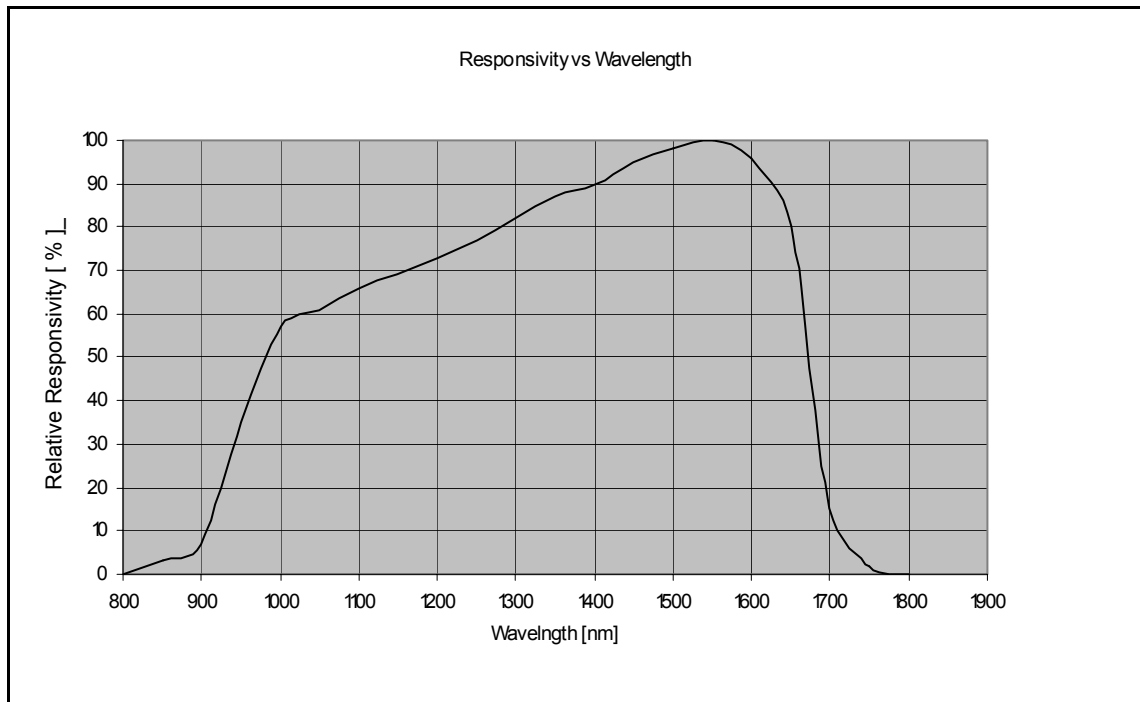


Figure 5 - Responsivity vs Wavelength of Coupled Input Power

Application Guidelines



ESD handling

The receiver is sensitive to electrostatic discharges. When handling the device, precautions for ESD sensitive devices should be taken. These precautions include use of ESD protected work area with wrist straps, controlled work benches, floors etc.

Power Supply Filter

Power Supply decoupling capacitors are recommended for optimal performance of the receiver. A filter is recommended to minimize power supply noise, see Figure 6.

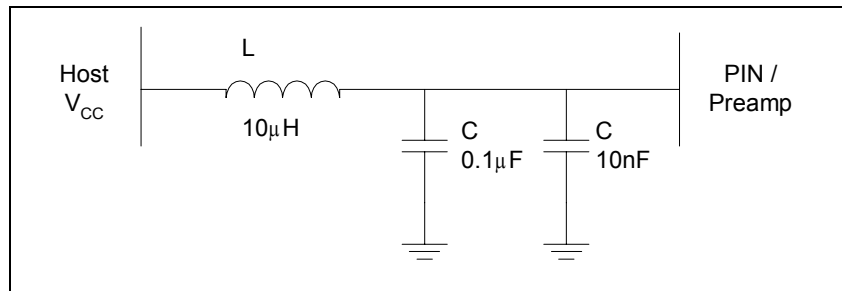
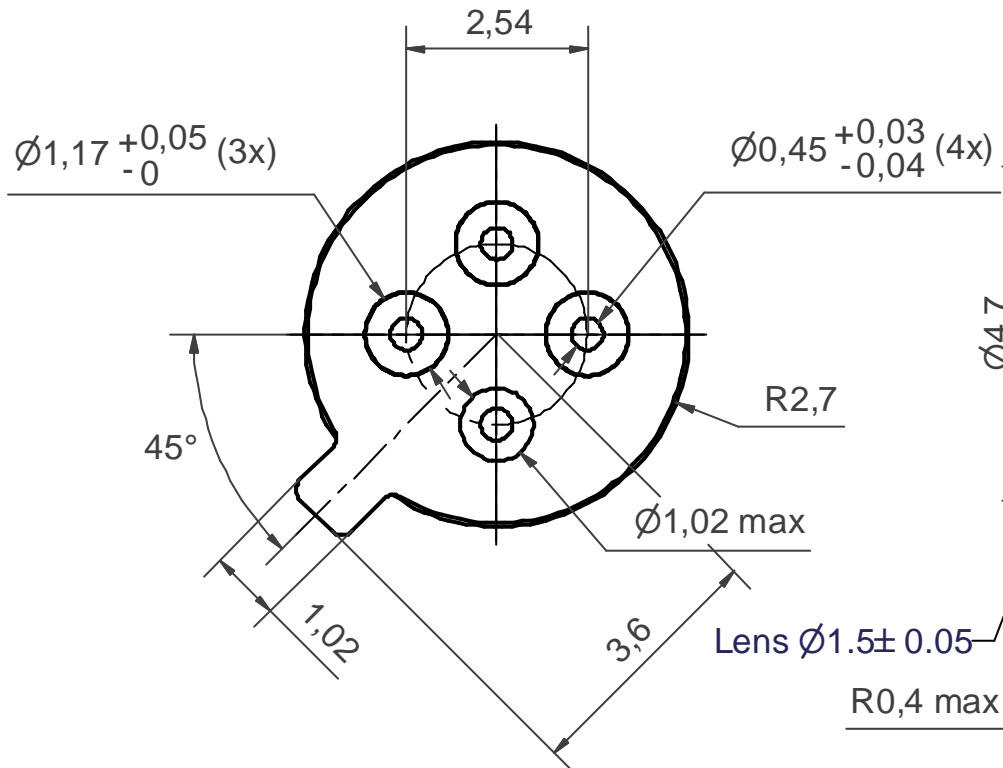


Figure 6 - Recommended Power Supply Filter

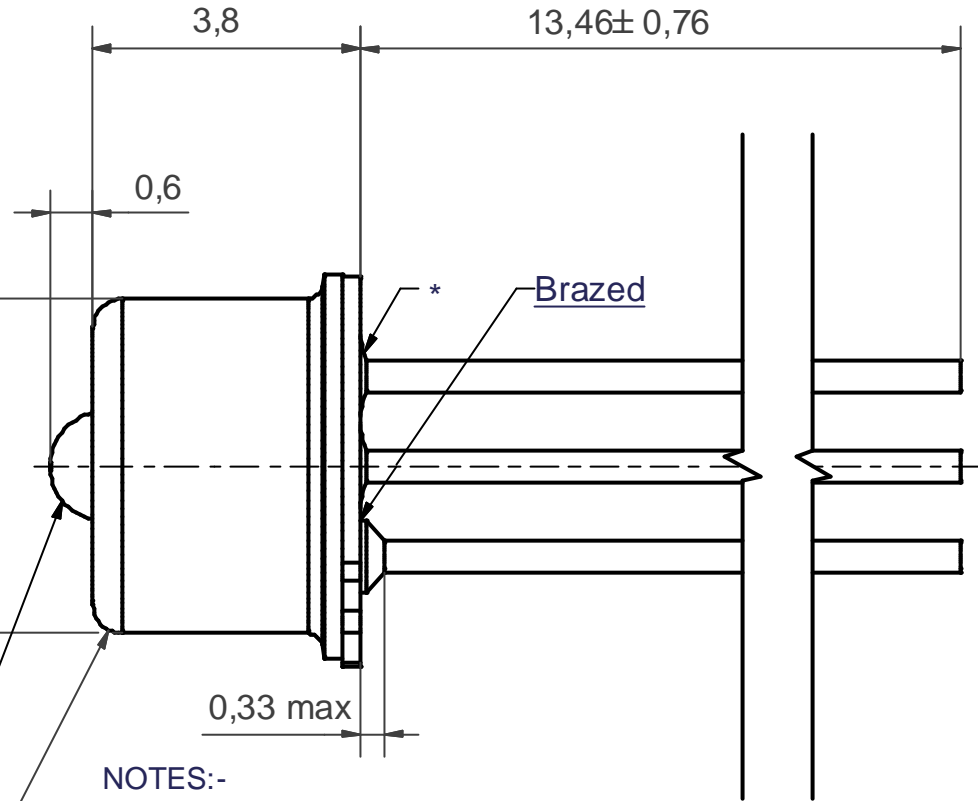
Data Outputs

The outputs Data and $\overline{\text{Data}}$, need to be AC-coupled. Typical value for the capacitors are 0.1 μF .

BOTTOM VIEW (10 : 1)



SIDE VIEW



NOTES:-

1. All dimensions in mm.
2. General tol. ISO-2768-mK.
3. Coating: Case: Ni 1,5-2,5 μ m.
Header: Ni min 0,5 μ m / Au min 1,5 μ m.

* 0,25 max glass overmould (3x)

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